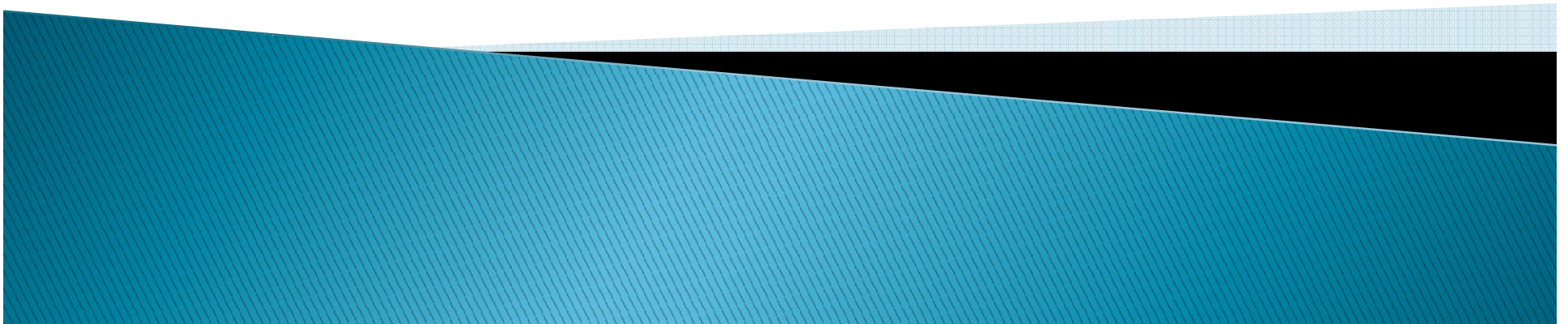


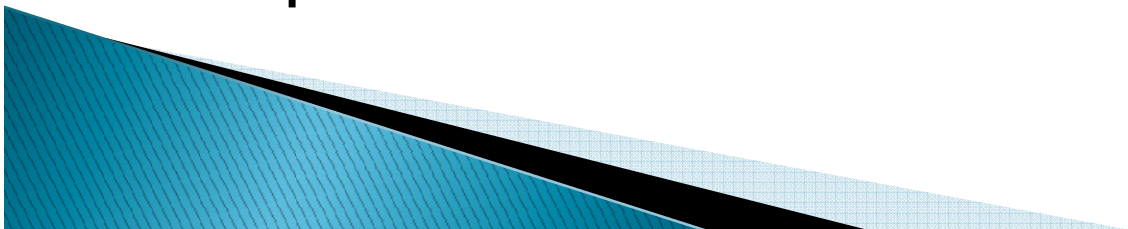
# Education Focus

Nolan Creek Watershed  
Stakeholder Meeting  
September 5, 2013



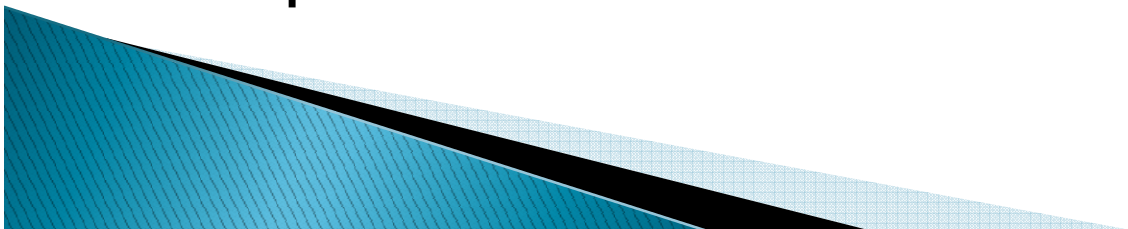
# Task 7 : Information And Education Component

- ▶ Subtask 7.1: Define Education and Outreach Goals and Objectives
- ▶ Subtask 7.2: Identify and Analyze the Target Audience
- ▶ Subtask 7.3: Design the Education and Outreach Implementation Measures
- ▶ Subtask 7.4: Evaluate the Education and Outreach Program
- ▶ Subtask 7.5: Information and Education Plan Report



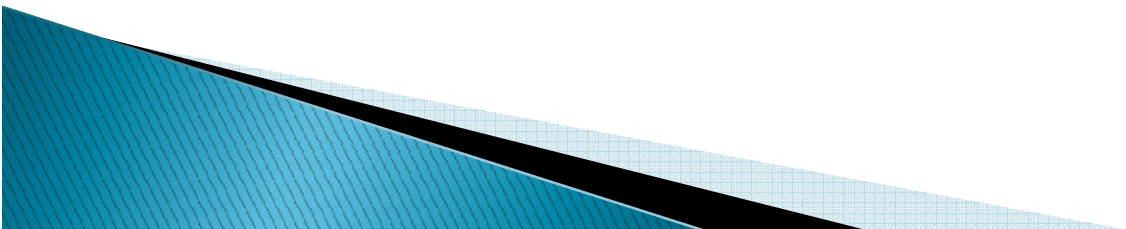
# Task 7 : Information And Education Component

- ▶ **Subtask 7.1: Define Education and Outreach Goals and Objectives**
- ▶ Subtask 7.2: Identify and Analyze the Target Audience
- ▶ Subtask 7.3: Design the Education and Outreach Implementation Measures
- ▶ Subtask 7.4: Evaluate the Education and Outreach Program
- ▶ Subtask 7.5: Information and Education Plan Report



# Educational Objective & Goals

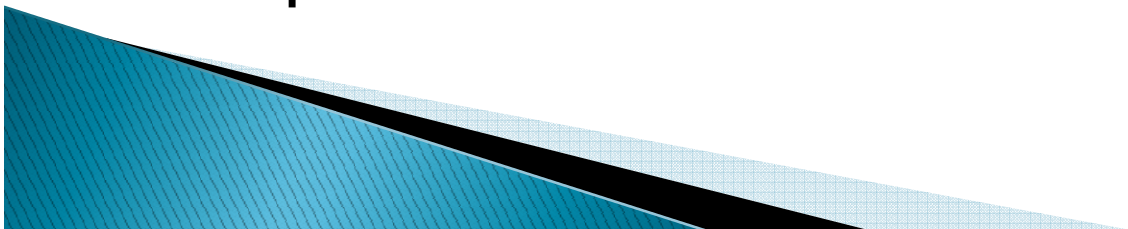
- ▶ Objective
  - Protect and Restore Water Quality
  
- ▶ Watershed Goals
  - Development of general strategies to reach targeted audiences
  - Development of an evaluation component that measures qualitative and quantitative results





# Task 7 : Information And Education Component

- ▶ Subtask 7.1: Define Education and Outreach Goals and Objectives
- ▶ **Subtask 7.2: Identify and Analyze the Target Audience**
- ▶ Subtask 7.3: Design the Education and Outreach Implementation Measures
- ▶ Subtask 7.4: Evaluate the Education and Outreach Program
- ▶ Subtask 7.5: Information and Education Plan Report



# Targeted Audiences for Outreach

## ▶ Individuals & Non-government Entities

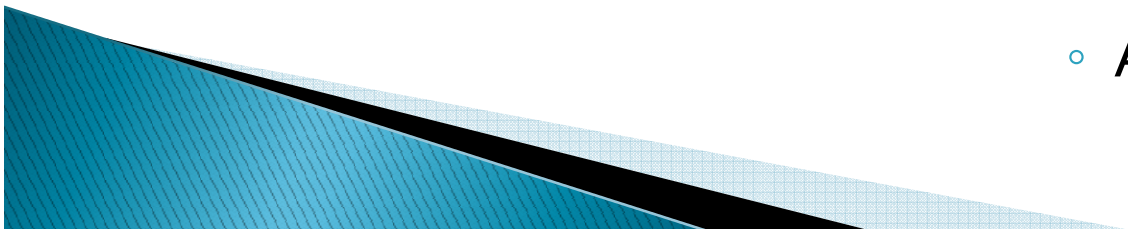
- Landowners
- Citizen groups
- Community service organizations
- Religious organizations
- Homeowners' associations
- Recreationist
- Business & Industry representatives
- Environmental & conservation groups

## ▶ Local and Regional Government Entities

- County or Regional Officials
- Local Municipal Representatives
- Universities, Colleges, ISDs
- Conservation Districts
- WCID's and WSC's
- MUDs

## ▶ State & Federal

- Fort Hood
- Agencies



# NPS Assessment Report\*\*

## Sources of Pollution Contributing to Impairments

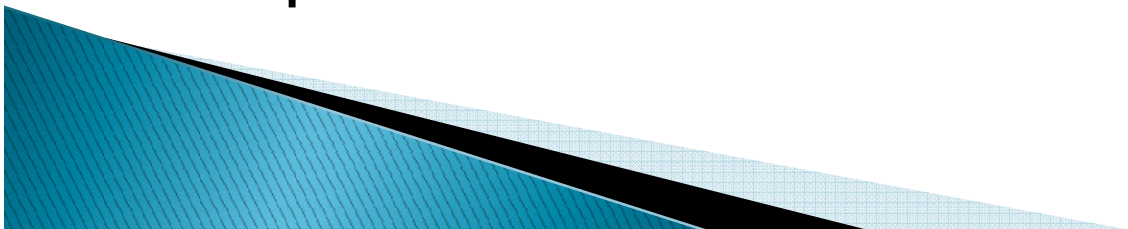
Probable Source Group	Rivers (Mi.)	Lakes (Ac.)
Agriculture*	690.9	
Aquaculture	9.5	
Atmospheric Deposition*	1.0	3,753.9
Habitat Alterations*	0.5	
Hydromodification*	11.0	2,410.0
Industrial	73.9	1,516.0
Land Application/Waste Sites/Tanks	5.6	
Legacy/Historical Pollutants		1,516.0
Municipal Discharges/Sewage	785.2	
Natural/Wildlife*	612.9	150.0
Other	249.0	2,710.0
Resource Extraction	12.6	
Unknown	1,070.2	4,228.9
Unspecified NPS*	848.0	2,710.0
Urban-Related Runoff/Storm water	430.8	
NPS Total	2,164.3 (45%)	9,023.9 (48%)

\* Category of NPS

\*\* Information provided by TCEQ

# Task 7 : Information And Education Component

- ▶ Subtask 7.1: Define Education and Outreach Goals and Objectives
- ▶ Subtask 7.2: Identify and Analyze the Target Audience
- ▶ **Subtask 7.3: Design the Education and Outreach Implementation Measures**
- ▶ Subtask 7.4: Evaluate the Education and Outreach Program
- ▶ Subtask 7.5: Information and Education Plan Report

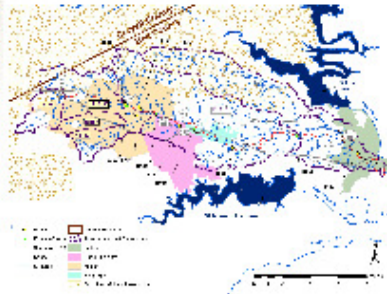


<http://www.killeentexas.gov/nolancreekwatershed>

## Nolan Creek Watershed Partnership

### Background

[Nolan Creek Watershed Fact Sheet](#)



QAAP Basemap

### Publications

[Newsletters](#)  
[Annual Reports](#)  
[Quarterly Reports](#)  
[Outreach Materials](#)

### News

#### Meetings

**July 31, 2013 Partnership Meeting**

[Agenda](#)  
[Background](#)  
[Monitoring](#)  
[Outreach and Education](#)  
[Next Steps](#)

#### Upcoming Workshops

#### WPP Update

### Contact Information

**Nikki Jackson**  
Senior Project & Policy Director, TIAER  
[Email](#) Nikki Jackson  
(254) 968-1902

### Join Mailing List

If you would like to receive updates about the progress of the Nolan Creek Watershed Partnership, please email the following information to Nikki Jackson:

- First and last name
- Entity
- Email address
- Phone number
- Street address
- State
- Zip code

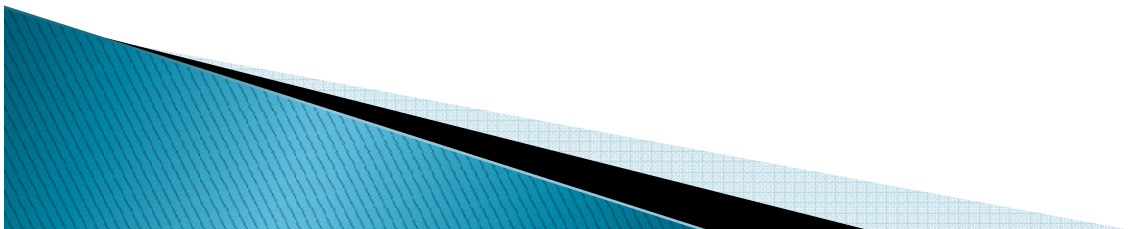
*Your contact information will not be sold or shared and will only be used to convey Partnership information.*

### Links

[Texas Institute for Applied Environmental Research \(TIAER\)](#)  
[Texas A&M AgriLife Research at Blackland Research & Extension Center](#)  
[Texas A&M Spatial Sciences Laboratory](#)  
[Texas State Soil & Water Conservation Board](#)  
[Brazos River Authority](#)  
[Texas Watershed Stewards](#)  
[Bell County Extension Office](#)  
[Texas Department of Agriculture](#)  
[Texas Commission on Environmental Quality](#)  
[Texas Commission on Environmental Quality - Clean Rivers Program](#)  
[Texas Commission on Environmental Quality - Texas Water Quality Inventory and 303\(d\) List](#)  
[Texas Parks & Wildlife Department](#)  
[Natural Resource Conservation Service](#)  
[US Environmental Protection Agency Water Page](#)  
[US Environmental Protection Agency - Non Point Source Pollution](#)

# Watershed Education

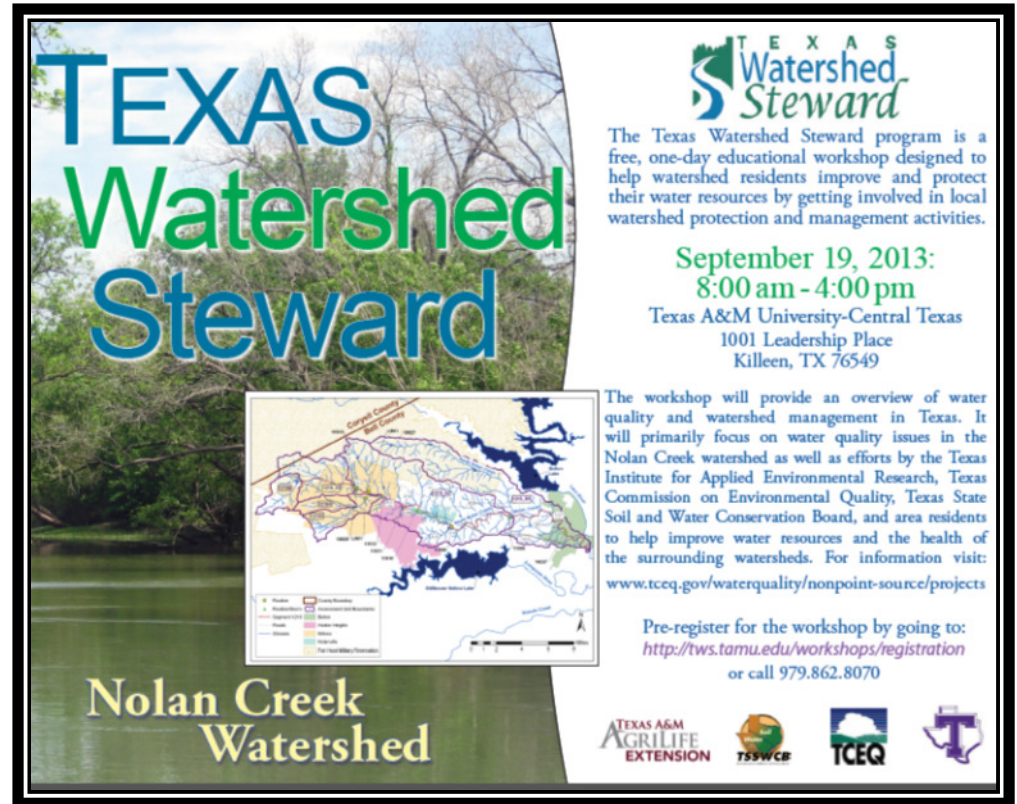
- ▶ Overall Awareness Campaign
  - Media
  - Partnership Agreements for Message Distribution
- ▶ Training for the Public
  - Riparian PFC Workshops
  - Rainwater Harvesting Education





# Watershed Education Programs

- ▶ Watershed Planning Short Course
- ▶ TX Watershed Stewards
- ▶ Watershed Coordinators Roundtable
- ▶ TX Stream Team
- ▶ Urban BMP Initiative



**TEXAS Watershed Steward**

The Texas Watershed Steward program is a free, one-day educational workshop designed to help watershed residents improve and protect their water resources by getting involved in local watershed protection and management activities.

**September 19, 2013:  
8:00 am - 4:00 pm**  
Texas A&M University-Central Texas  
1001 Leadership Place  
Killeen, TX 76549

The workshop will provide an overview of water quality and watershed management in Texas. It will primarily focus on water quality issues in the Nolan Creek watershed as well as efforts by the Texas Institute for Applied Environmental Research, Texas Commission on Environmental Quality, Texas State Soil and Water Conservation Board, and area residents to help improve water resources and the health of the surrounding watersheds. For information visit: [www.tceq.gov/waterquality/nonpoint-source/projects](http://www.tceq.gov/waterquality/nonpoint-source/projects)

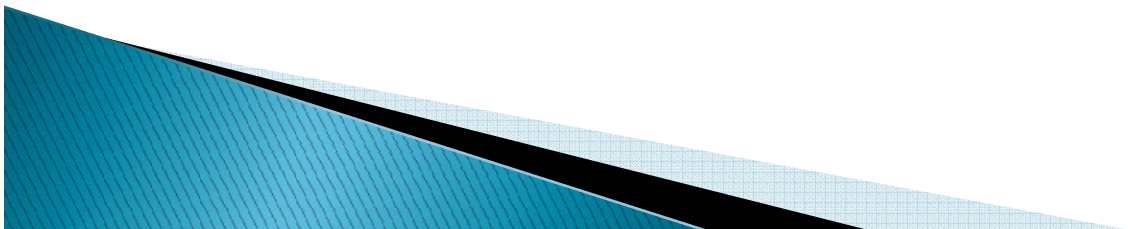
Pre-register for the workshop by going to:  
<http://tw.s.tamu.edu/workshops/registration>  
or call 979.862.8070

**Nolan Creek Watershed**

Logos: TEXAS A&M AGRILIFE EXTENSION, TSSWCB, TCEQ, and the Texas state logo.

# Education Focus

- ▶ Agriculture
- ▶ Wildlife, Feral Hogs, & Non-Domestic Animals
- ▶ Illegal Dumping
- ▶ Septic Systems
- ▶ Urban Runoff



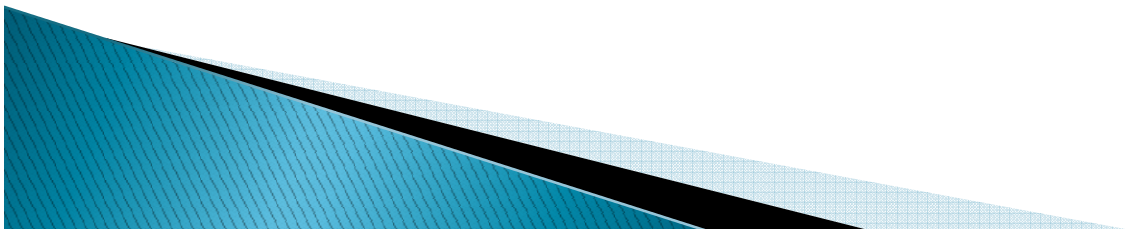


# Agriculture

- ▶ Livestock Grazing Management Education
- ▶ Soil and Water Nutrient Testing

## Wildlife, Feral Hogs, & Non-Domestic Animals

- ▶ Feral Hog Management Workshops



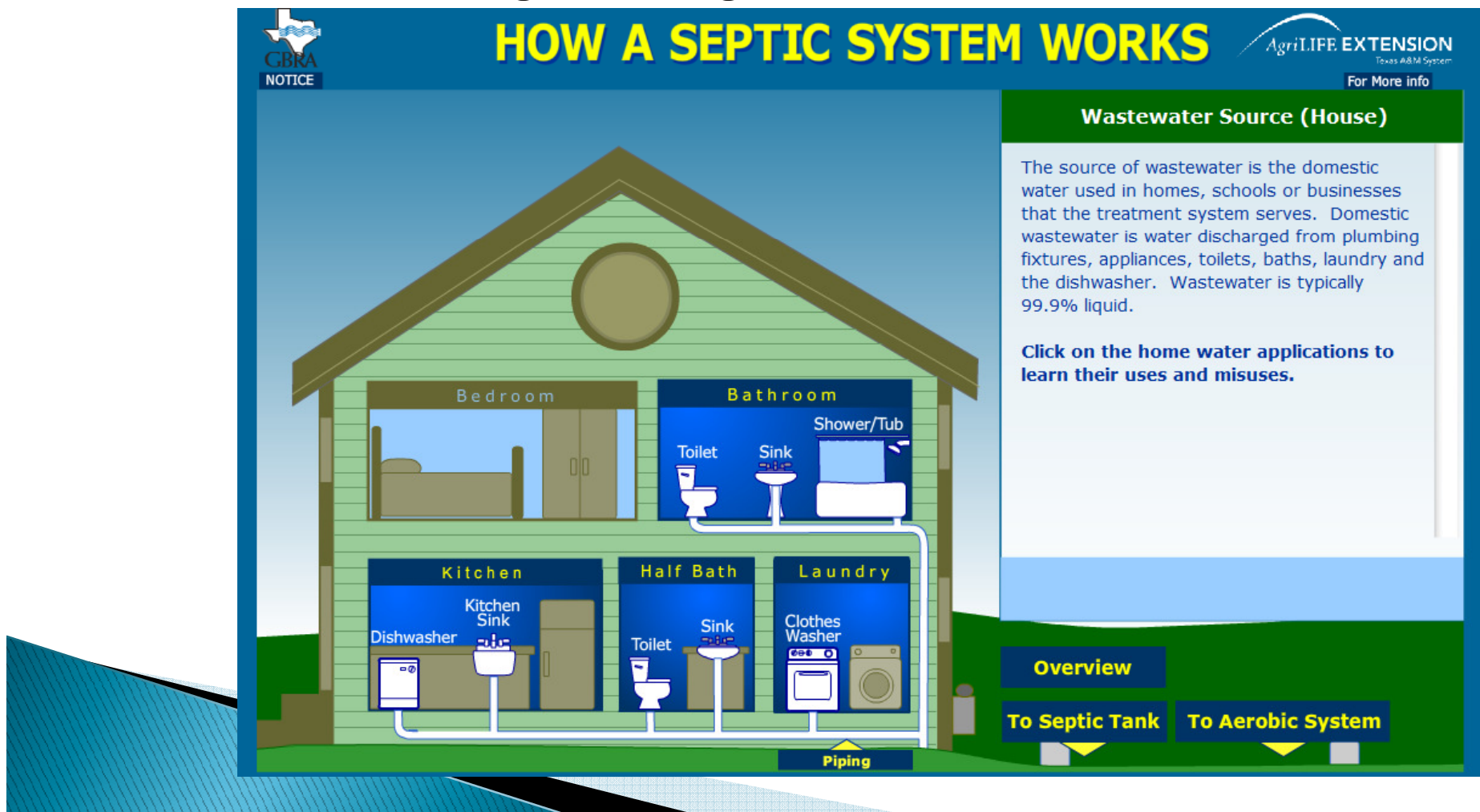
# Illegal Dumping

- ▶ Signage Along Creek and Tributaries
- ▶ Identification of Priority Clean-up Sites
- ▶ Code Enforcement



# Training for Septic System Owners

- ▶ <http://www.gbra.org/septic.swf>



# Urban Runoff

- ▶ School Districts
  - Sport Athletic Fields Education Program
  - Water Quality Project
- ▶ Storm Water BMP Demonstrations
  - Inlet Marking
  - Native Landscaping
- ▶ Pet Waste Programs





# City of League City Water Smart Park



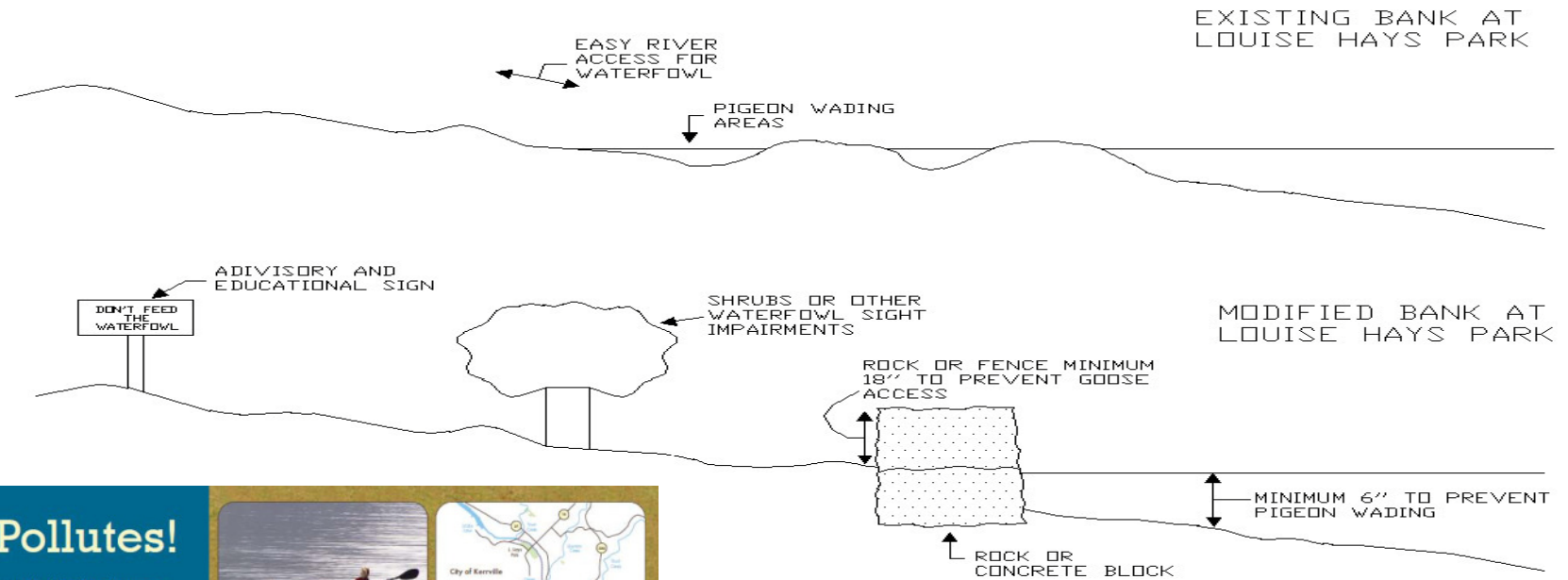
FEBRUARY 9, 2012

The information shown is based on the best information available and is subject to change without notice.

WATER SMART PARK  
SITE PLAN

T B G

# City of Kerrville – Bacteria Impairment Louise Hays Park – Waterfowl Management



## Poop Pollutes!

Bacteria found in pet and waterfowl feces have become a problem in the Upper Guadalupe River through Kerrville. In order to maintain swimming, wading, and other recreation uses of the park we need your help. Clean up after your pet to help keep our river clean!

### Problems

- Bacteria levels in riverside park areas are much higher than other areas of the Upper Guadalupe River, and sometimes exceed the State standard for contact recreation.
- Pet waste may contain harmful pathogens (bacteria, viruses, protozoa) that can make the water unsafe for recreation and other uses.
- Pet waste contains nutrients that may accelerate the growth of nuisance algae.

### Solutions

- Be responsible for your pet – scoop the poop and then toss it in the trash.
- Be a hero – pick up pet waste left behind by others and report violators to the Kerr County Environmental Health Department at 896.9020.
- Notify the Upper Guadalupe River Authority at 896.5445 if the bag dispenser is empty.

Let's keep OUR river clean!

### Guadalupe River Bacteria Levels

Location	Bacteria Level (colony forming units/liter)
UCLA Lake	~10
Upstream of Guadalupe River	~20
Downstream of Guadalupe River	~150
Upstream of River	~10
Downstream of River	~10

### It's the Law!

TEXAS HEALTH & SAFETY CODE § 341.013  
Waste products, polluting material ... or other waste of any kind may not be deposited or disposed of in a manner that may cause the pollution of the surrounding land or the contamination of groundwater or surface water. Maximum fine: \$2000.

Brought to you by the TACU Stakeholders Group, find out more at [www.upgriver.org/leisure/341](http://www.upgriver.org/leisure/341)  
Material collected from the City of Austin Watershed Protection.

Off leash is not off the hook





## Awwhh! Isn't he cute? But he will pollute.

The squirrels, birds, and other wildlife flock to the River Walk area mostly because people feed them. Unfortunately, too many animals mean too much animal poop in the river--and that's not cute.

The River Walk Watershed Alliance (RWWA) asks you to please not feed the wildlife while you're enjoying the River Walk.



*For more information, or to contact an RWWA member, visit [www.rwwa.us](http://www.rwwa.us).*



Please don't feed the animals on the River Walk.

**RWWA**  
RIVER WALK WATERSHED ALLIANCE

PREPARED IN COOPERATION WITH THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY  
The preparation of this material was financed through grants from the U.S. Environmental Protection Agency through the Texas Commission on Environmental Quality.

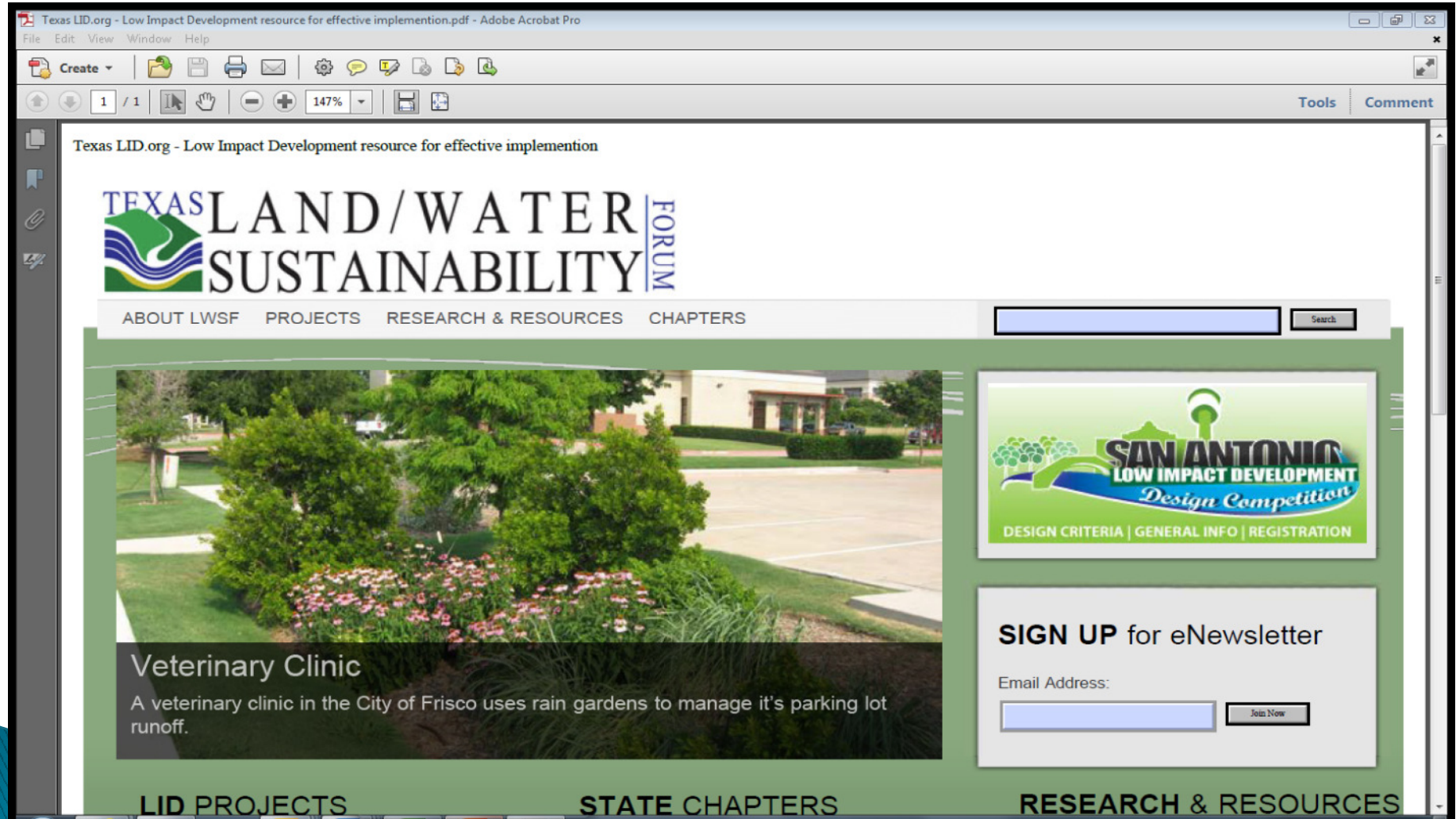
## San Antonio River Authority Outreach and Education Program



# River. Life. Love it.

Sustaining a healthy river, together.

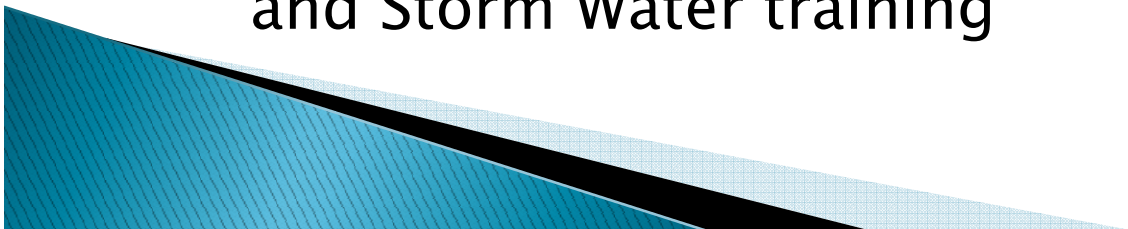
# TexasLID.org Website Resources





# Urban Runoff

- ▶ NPS Education Workshops for Municipal Officials
- ▶ Urban Nutrient Management
  - Public Service Announcements
  - Utility Bill Inserts
- ▶ Wastewater
  - Fats, Oils, and Grease (FOG) Workshops
  - Online links to GBRA Wastewater treatment, FOG, and Storm Water training



# City of Killeen FOG Program

## About fats, oil, grease (FOG) in the sewer system

Fats, oils, and grease—FOG—comes from meat fats in food scraps, cooking oil, shortening, lard, butter and margarine, gravy, and food products such as mayonnaise, salad dressings, and sour cream.

FOG poured down kitchen drains accumulates inside sewer pipes. As the FOG builds up, it restricts the flow in the pipe and can cause untreated wastewater to back up into homes and businesses, resulting in high costs for cleanup and restoration.

Manholes can overflow into parks, yards, streets, and storm drains, allowing FOG to contaminate local waters, including drinking water. Exposure to untreated wastewater is a public-health hazard.

FOG discharged into septic systems and drain fields can cause malfunctions, resulting in more frequent tank pump-outs and other expenses.

Restaurants, cafeterias, and fast-food establishments spend tens of thousands of dollars on plumbing emergencies each year to deal with grease blockages and pump out grease traps and interceptors. Some cities also charge businesses for the repair of sewer pipes and spill cleanup if they can attribute the blockage to a particular business. Some cities also add a surcharge to wastewater bills if a business exceeds a specified discharge limit. These expenses can be a significant.

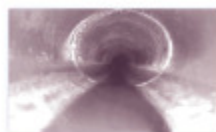
Communities spend billions of dollars every year unplugging or replacing grease-blocked pipes, repairing pump stations, and cleaning up costly and illegal wastewater spills. Excessive FOG in the sewer system can affect local wastewater rates.

So, keeping FOG out of the sewer system helps everyone in the community.

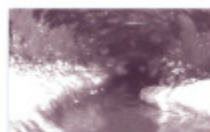
Fats, oils, and grease (FOG) can cause serious damage to your community's sewer system. Every year communities spend billions unclogging or repairing pipes.

FOG clogs pipes and the bits of rotting food trapped in the FOG form hydrogen sulfide. The hydrogen sulfide combines with water to form sulfuric acid, which eats the pipes.

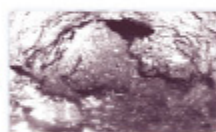
The clogs caused by FOG can also cause sanitary sewer overflows, which expose people to raw sewage—a serious health hazard—and are expensive to clean up.



Clean Pipe



Grease Coated Pipe



Grease Clogged Pipe



Sewer Spill

## In this section

### Water and Sewer

- [Fats, Oils, Grease \(FOG\) Program](#)
- [Backflow Prevention & Customer Service Division \(BPAT&CSI\)](#)
- [Water Conservation](#)

## Regulations/Ordinances

U.S Environmental Protection Agency (EPA)  
Potential Contamination Due to Cross  
Connections and Backflow and the Associated  
Health Risks

City of Killeen Ordinance, Chapter 30:

- [Article III: Sewers and Sewage Disposal-FOG](#)  
Sec. 30-73. Prohibited discharges through
- Sec. 30-84. Judicial enforcement remedies

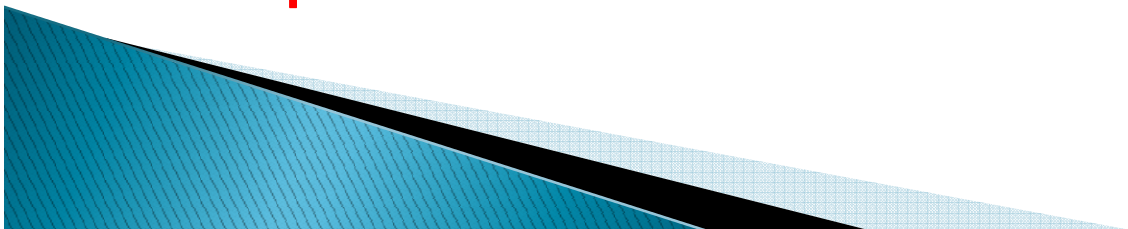
## Educational Downloads

Download these flyers to learn how you can help

- [Let's Tackle the Grease in This Kitchen!](#)
- [How sewer blockage affects the sewer system](#)
- [Effective ways to dispose of household waste and contribute to a sustainable clean environment](#)

# Task 7 : Information And Education Component

- ▶ Subtask 7.1: Define Education and Outreach Goals and Objectives
- ▶ Subtask 7.2: Identify and Analyze the Target Audience
- ▶ Subtask 7.3: Design the Education and Outreach Implementation Measures
- ▶ **Subtask 7.4: Evaluate the Education and Outreach Program**
- ▶ **Subtask 7.5: Information and Education Plan Report**



# Questions?



Kristina Ramirez, PE, CFM

Director of Environmental Services

City of Killeen

254-501-7629

[kramirez@killeentexas.gov](mailto:kramirez@killeentexas.gov)